EXP NO:5B **TOPOLOGICAL CONNECTIONS CISCO PACKET TRACER**

DATE: 16.8.24

AIM: To Design a simple topology using CiscoPacket Tracer

1) PEER TO PEER CONNECTION:

1. Open Cisco Packet Tracer

- Launch Cisco Packet Tracer on your computer.

2. Add Devices

- Drag and drop the devices you want to connect (e.g., PCs, servers) from the device list to the workspace. For a peer-to-peer connection, typically, you'll use two PCs.

3. Connect Devices

- Use a **Copper Straight-Through cable** for the connection if connecting similar devices (like two PCs).
  - Click on the **Connections** icon (lightning bolt) from the bottom left of the Packet Tracer window.
  - Choose **Copper Straight-Through**.
  - Click on one PC and then click on the other PC to connect them.

4. Configure IP Addresses

- You need to assign IP addresses to both PCs so they can communicate directly.

  For PC1:

  - Click on **PC1** in the workspace.
  - Go to the **Desktop** tab.
  - Click on **IP Configuration**.
  - Set the **IP Address** (e.g., 192.168.1.1).
  - Set the **Subnet Mask** (e.g., 255.255.255.0).

  For PC2:

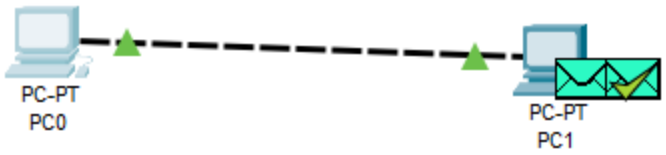
  - Click on **PC2** in the workspace.

- Go to the **Desktop** tab.
- Click on **IP Configuration**.
- Set the **IP Address** (e.g., 192.168.1.2).
- Set the **Subnet Mask** (e.g., 255.255.255.0).

5. Verify the Connection

- Use the **Command Prompt** on each PC to check connectivity.
  - On **PC1**, open **Command Prompt** from the **Desktop** tab.
  - Type ping 192.168.1.2 and press Enter. This pings PC2.
  - On **PC2**, open **Command Prompt** and type ping 192.168.1.1 to ping PC1.

If the pings are successful, the peer-to-peer connection is working.



2)2 SWITCHES, 8PC's AND ONE ROUTER:

1. Open Cisco Packet Tracer:

Launch Cisco Packet Tracer on your computer.

2. Add a Router:

- Click on the "Network Devices" icon (router icon) in the bottom-left pane.
- Select the "Routers" category.
- Drag and drop a router (e.g., 2901 or 1941) onto the workspace.

3. Add a Switch:

- Click on the "Network Devices" icon again.
- Select the "Switches" category.
- Drag and drop a switch (e.g., 2960) onto the workspace.

4. Add PCs:

- Click on the "End Devices" icon (computer icon).
- Select "PC" from the available options.
- Drag and drop eight PCs onto the workspace.

5. Connect the Switch to the Router:

- Click on the "Connections" icon (lightning bolt).
- Choose "Copper Straight-Through" cable.
- Click on the router, then select one of the Ethernet interfaces (e.g., GigabitEthernet0/0).
- Click on the switch, then select one of the switch ports (e.g., FastEthernet0/1).

6. Connect the PCs to the Switch:

- Using the "Copper Straight-Through" cable, connect each PC to a port on the switch:
  - Click on PC1, select the Ethernet port (usually FastEthernet0).
  - Click on the switch, and select an available port (e.g., FastEthernet0/2).
  - Repeat this process for each PC, connecting them to different ports on the switch.

7. Configure IP Addresses:

- For each PC, click on the PC, go to the "Desktop" tab, and then click on "IP Configuration."
- Assign a unique IP address and subnet mask to each PC. For example, use the following IP addresses:
  - **PC1:** IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0
  - **PC2:** IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0
  - **PC3:** IP Address: 192.168.1.4, Subnet Mask: 255.255.255.0
  - **PC4:** IP Address: 192.168.1.5, Subnet Mask: 255.255.255.0
  - **PC5:** IP Address: 192.168.1.6, Subnet Mask: 255.255.255.0
  - **PC6:** IP Address: 192.168.1.7, Subnet Mask: 255.255.255.0
  - **PC7:** IP Address: 192.168.1.8, Subnet Mask: 255.255.255.0
  - **PC8:** IP Address: 192.168.1.9, Subnet Mask: 255.255.255.0

8. Configure the Router:

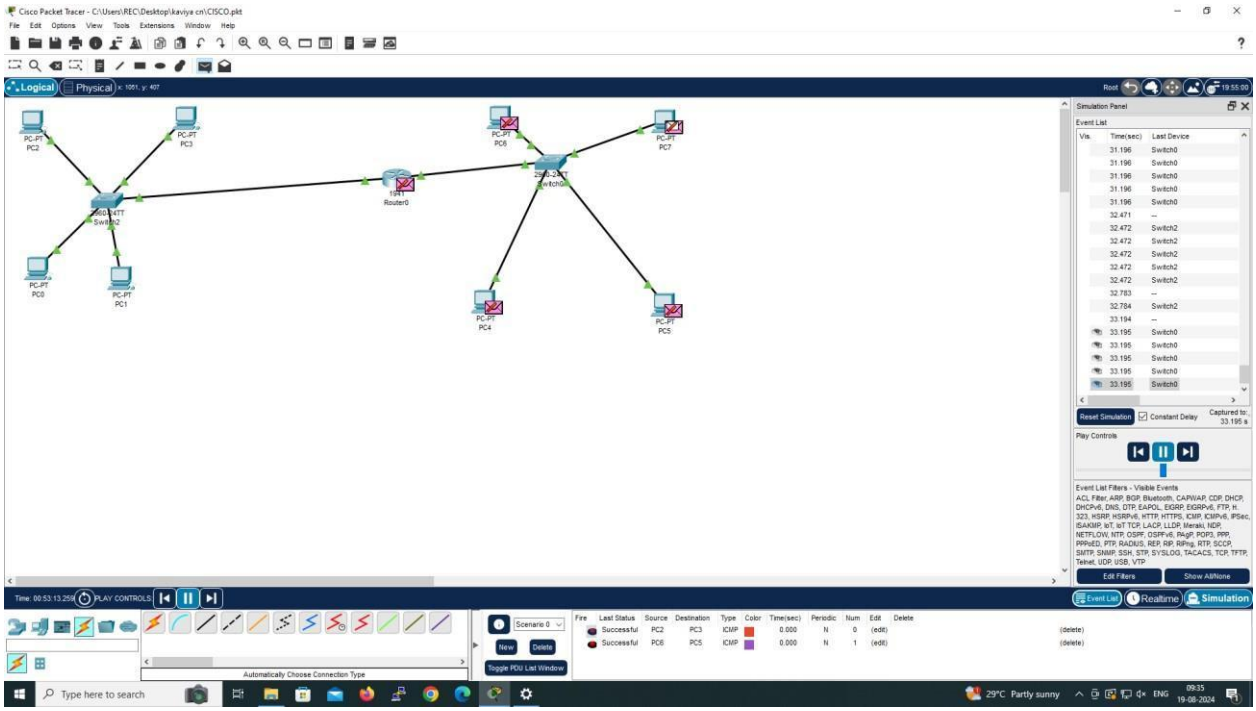
- Click on the router and go to the "CLI" tab to enter command-line interface mode.
- Enter the following commands to configure the router:

```
plaintext
Copy code
enable
configure terminal
interface GigabitEthernet0/0
ip address 192.168.1.1 255.255.255.0
no shutdown
exit
```

9. Verify Connectivity:

- On each PC, open the "Command Prompt" from the "Desktop" tab.
- Use the ping command to check connectivity to the router. For example, from PC1, type ping 192.168.1.1 and press Enter.
- Ensure that all PCs can successfully ping the router's IP address and each other.

By following these steps, you should have a network with eight PCs connected through a switch to a router, with all devices properly configured for communication.

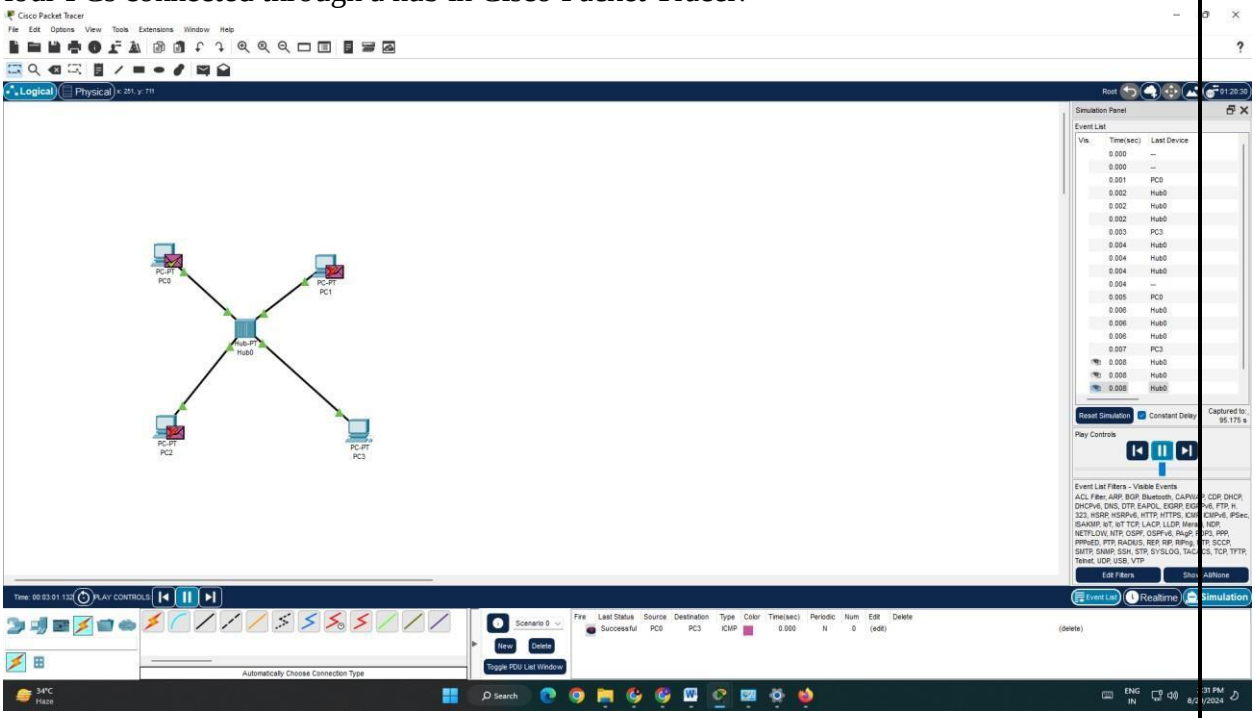


3) 4 PC's AND ONE HUB:

Open Cisco Packet Tracer: Launch the Cisco Packet Tracer application on your computer.

1. **Add a Hub:**
   - On the bottom-left side of the interface, click on the "Network Devices" icon (it looks like a router).
   - Select the "Hubs" category.
   - Drag and drop a "Hub" onto the workspace.
2. **Add PCs:**
   - Click on the "End Devices" icon (it looks like a computer).
   - Select "PC" from the available options.
   - Drag and drop four PCs onto the workspace.
3. **Connect PCs to the Hub:**
   - Click on the "Connections" icon (it looks like a lightning bolt).
   - Select "Copper Straight-Through" cable (often shown as a solid yellow line with connectors).
   - Click on the first PC, then select the appropriate Ethernet port (usually "FastEthernet0" or similar).
   - Click on the hub, then select one of its available ports (e.g., "FastEthernet0/1").
   - Repeat this process to connect each of the remaining PCs to the hub, using different ports on the hub for each connection.
4. **Configure IP Addresses:**
   - Click on each PC and select the "Desktop" tab.
   - Click on "IP Configuration."
   - Assign a unique IP address and subnet mask to each PC. For example:
     - **PC1:** IP Address: 192.168.1.1, Subnet Mask: 255.255.255.0
     - **PC2:** IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0
     - **PC3:** IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0
     - **PC4:** IP Address: 192.168.1.4, Subnet Mask: 255.255.255.0
5. **Verify Connectivity:**
   - Go to one of the PCs, open the "Command Prompt" from the "Desktop" tab.
   - Use the ping command to check connectivity to the other PCs. For example, from PC1, you can ping PC2 by typing ping 192.168.1.2 and pressing Enter.
   - Ensure that all PCs can ping each other successfully.

- By following these steps, you should be able to successfully set up a network with four PCs connected through a hub in Cisco Packet Tracer.



4) 4 PC's AND ONE SWITCH:

1. Open Cisco Packet Tracer:

Launch the Cisco Packet Tracer application on your computer.

2. Add a Switch:

- Click on the "Network Devices" icon (router icon) at the bottom of the screen.
- Select the "Switches" category.
- Drag and drop a switch (e.g., 2960) onto the workspace.

3. Add PCs:

- Click on the "End Devices" icon (computer icon).
- Select "PC" from the available options.
- Drag and drop four PCs onto the workspace.

4. Connect PCs to the Switch:

- Click on the "Connections" icon (lightning bolt).
- Select "Copper Straight-Through" cable.

- Click on the first PC, select its Ethernet port (usually FastEthernet0).
- Click on the switch, select one of its available ports (e.g., FastEthernet0/1).
- Repeat this process to connect each of the remaining PCs to different ports on the switch:
    - **PC2:** Connect to FastEthernet0/2.
    - **PC3:** Connect to FastEthernet0/3.
    - **PC4:** Connect to FastEthernet0/4.

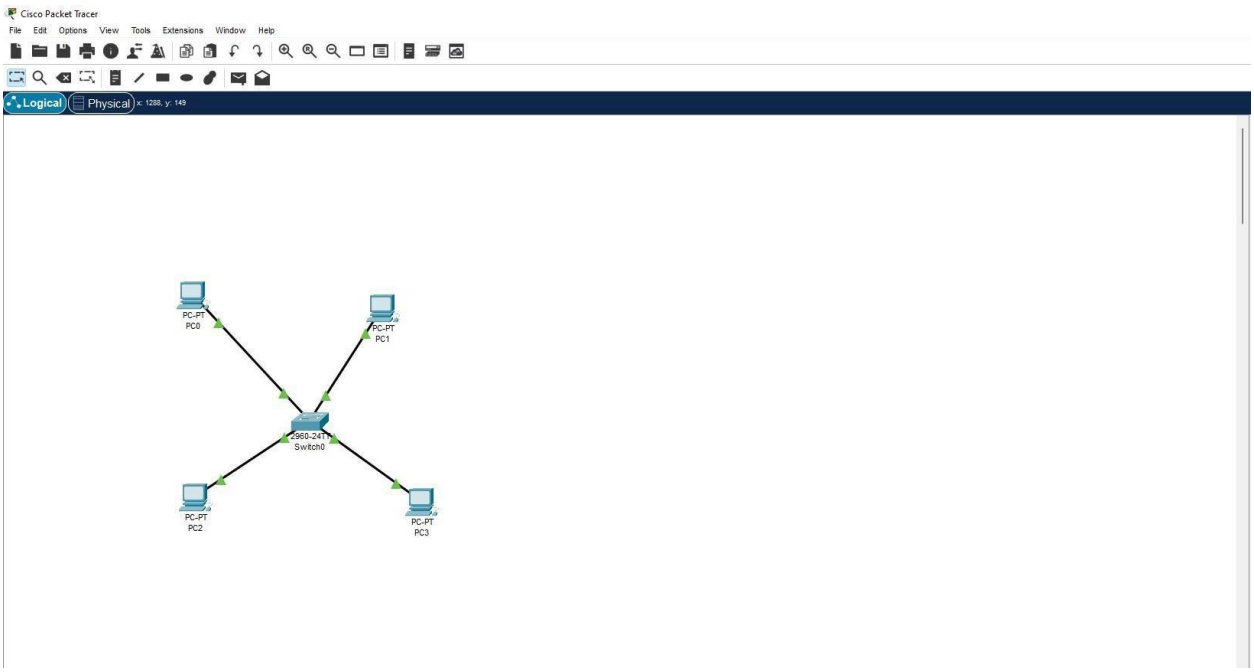
5. Configure IP Addresses:

- Click on each PC, go to the "Desktop" tab, and then click on "IP Configuration."
- Assign a unique IP address and subnet mask to each PC. For example:
    - **PC1:** IP Address: 192.168.1.2, Subnet Mask: 255.255.255.0
    - **PC2:** IP Address: 192.168.1.3, Subnet Mask: 255.255.255.0
    - **PC3:** IP Address: 192.168.1.4, Subnet Mask: 255.255.255.0
    - **PC4:** IP Address: 192.168.1.5, Subnet Mask: 255.255.255.0

6. Verify Connectivity:

- On each PC, open the "Command Prompt" from the "Desktop" tab.
- Use the ping command to check connectivity to the other PCs. For example, from PC1, you can type ping 192.168.1.3 and press Enter to ping PC2.
- Ensure that all PCs can successfully ping each other, indicating that the network is properly set up.

By following these steps, you should be able to successfully set up a network with four PCs connected through a switch in Cisco Packet Tracer.



RESULT :

Hence , a simple topology is designed using cisco packet tracer.